

CLAIMS

What is claimed is:

1. A method of automated path tracing from an original mesh switch through a switching mesh to a specified destination, the method comprising:  
5 building a mesh traceroute packet to the specified destination;  
transmitting the mesh traceroute packet via an exit port associated with the specified destination; and  
receiving the mesh traceroute packet as returned.
- 10 2. The method of claim 1, wherein the specified destination comprises a search MAC address and VLAN identifier.
3. The method of claim 1, further comprising:  
15 determining whether a trace complete flag in the returned packet is set;  
and  
outputting results from a completed mesh traceroute if the trace complete flag is set and if a trace found flag is set.
- 20 4. The method of claim 3, further comprising:  
generating an error message if the trace complete flag is clear or if failure is indicated by another flag.
5. The method of claim 1, further comprising:  
25 receiving the mesh traceroute packet at a hop mesh switch;  
appending a hop entry to the mesh traceroute packet; and  
forwarding the packet via a hop out-port to a next mesh switch.
6. The method of claim 5, further comprising:  
30 receiving the mesh traceroute packet at a destination mesh switch;  
appending a final hop entry to the mesh traceroute packet;  
marking a trace complete flag; and  
sending the packet back towards the original mesh switch.

7. The method of claim 6, wherein the packet is sent back towards the original mesh switch by way of a reverse trace path.
- 5 8. A switching device configured to be a member of a switching mesh, the switching device comprising:  
a plurality of ports; and  
a switch control device coupled to the plurality of ports,  
10 wherein the switch control device is configured to perform an automated method of tracing a path through the switching mesh to a specified destination.
9. The switching device of claim 8, wherein the automated method is  
15 accomplished by building a mesh traceroute packet to the specified destination, transmitting the mesh traceroute packet from an exit port associated with the specified destination, and receiving the mesh traceroute packet as returned via the same port.
- 20 10. The switching device of claim 9, wherein the specified destination comprises a search MAC address and VLAN identifier.
11. A method of responding to receipt of a mesh traceroute packet during an automated path tracing, the method comprising:  
25 receiving the mesh traceroute packet at a mesh switch; and  
appending a hop entry to the mesh traceroute packet.
12. The method of claim 11, further comprising:  
determining that the mesh switch comprises a hop mesh switch;  
30 filling in at least a hop in-port and a hop out-port in the hop entry; and  
forwarding the packet via the hop out-port to a next mesh switch.
13. The method of claim 11, further comprising:

determining that the mesh switch comprises a destination mesh switch;  
filling in at least a hop in-port in the hop entry;  
marking a trace complete flag; and  
returning the packet towards the original mesh switch via the hop in-port.